

International Technology Cooperation

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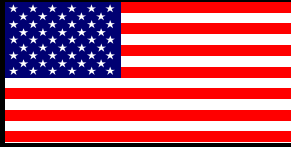
British Embassy

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- **UK Ministry of Defence Science and Technology**
- Why Cooperate?
- US/UK Cooperation
- The Technical Cooperation Program

DoD / MoD Comparison



- \$442Bn (\$148Bn proc/RDT&E)
- 3.3% of GDP
- Strong Congressional influence
- Single-services train and equip
- Widespread acquisition community
- Several major prime contractors



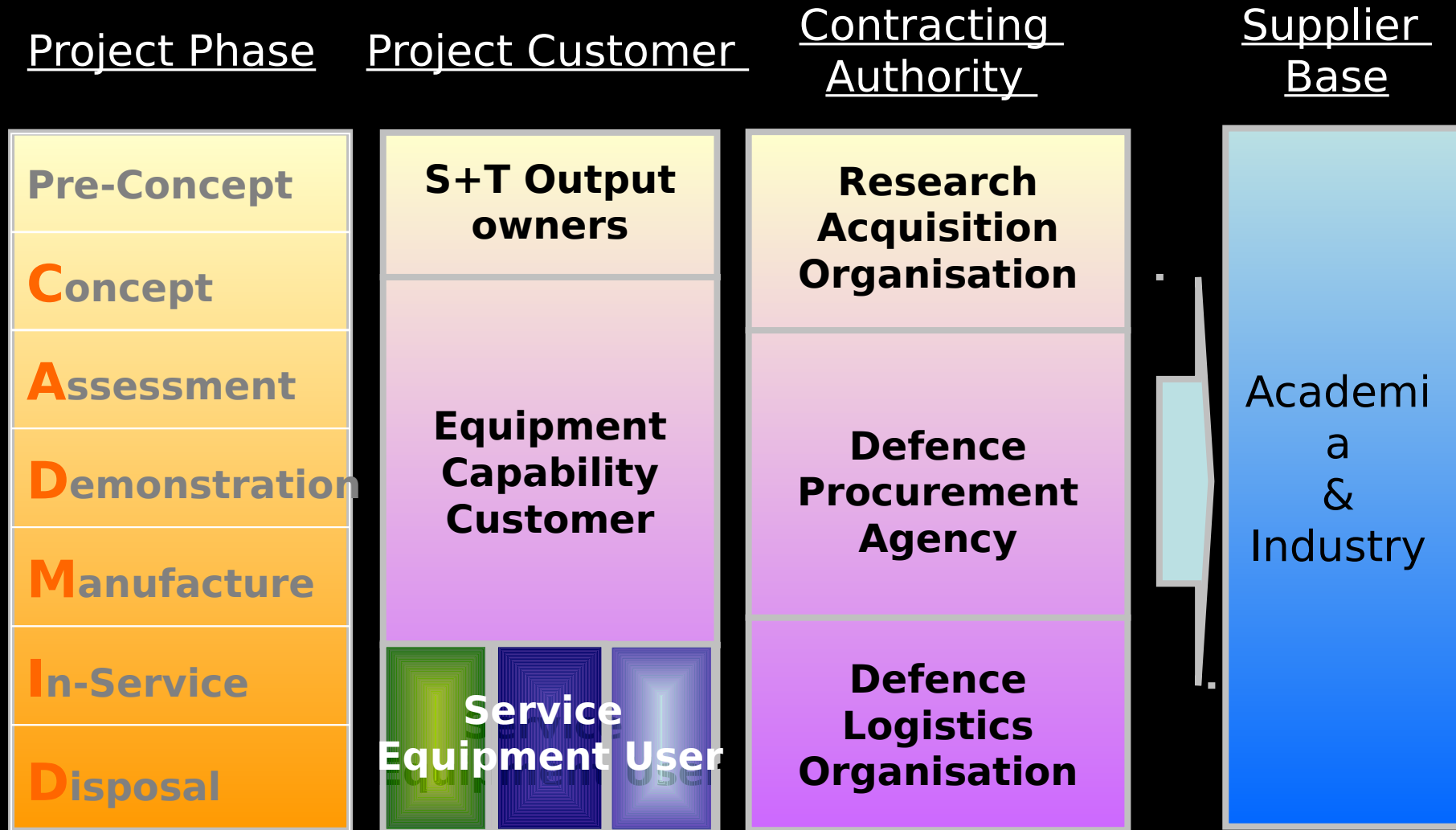
- \$57Bn (\$16Bn procurement, etc)
- 2.4% of GDP
- Little legislative influence
- Tri-service requirements, research and acquisition
- Focused acquisition community

Common defence goals, but varying approaches: collaboration provides diversity of approach as well as of technology

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Acquisition in the UK



History of UK Defence Laboratories



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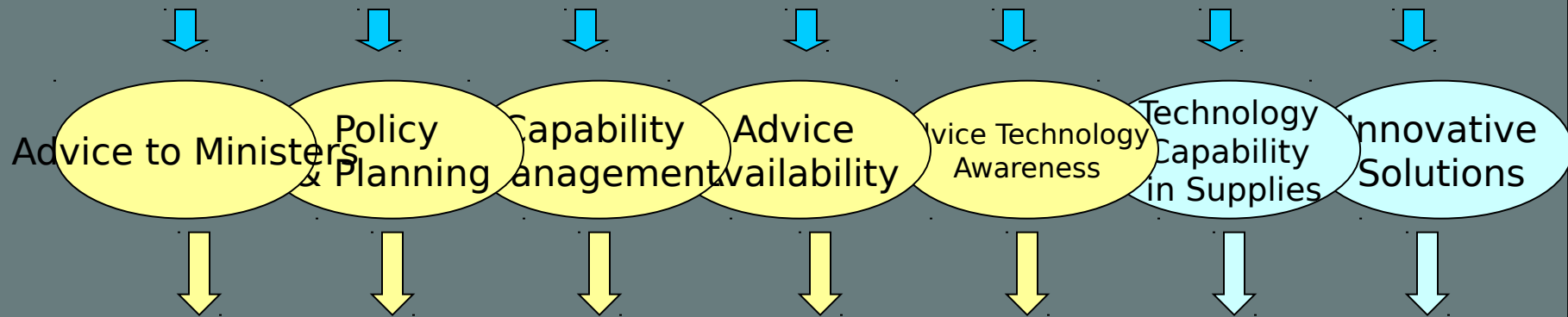
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Output Based Research

Government

Chief Scientific Adviser

MOD Defence S+T Board



Research Acquisition Organisation

[dsti]

QinetiQ

Industry

Universities

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UK Science & Technology Priorities

For Directed Research

- Command structures and decision support for NCW
- Information and data management
- Detection and identification of difficult targets, BDA and Combat Id
- Unmanned systems
- Precision weapons, including for HDBT
- CBR detection and countermeasures
- Improved mobile communications
- Recruitment, retention, reduced manning and duty of care
- Detection and disruption of explosive devices
- Technology Insertion
- Modelling and simulation for effects based operations, experimentation, urban ops, human systems and logistics supply chain

UK Science & Technology Priorities

For Innovative Research

- Autonomous systems
- Wireless sensor networks
- Generic biological detection and countermeasures
- Novel sensor and processing technology
- Active or Multifunctional material technologies
- Technology enabling low cost, low maintenance or high availability systems
- Technologies to reduce environmental impact
- Information systems
- Power Sources



Defence Technology Centres

Defence **Technology** Centres

- Development of enabling-level technologies
- Formal collaboration between **MoD, industry and academia**

Data Information
Fusion Defence
Technology Centre

EM REMOTE SENSING



Defence Technology Centre



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Towers of Excellence

- Partnership with industry
- Focus resources on priority areas
- Improve transition and pull-through



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Outline

- UK Ministry of Defence Science and Technology
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Why Cooperate?

- **Military** Imperative
 - Improved interoperability
 - More capable allies – increased burden-sharing
 - Lessons identified / learnt
- **Fiscal** Imperative
 - Reduced research and acquisition costs
- **Intellectual** Imperative
 - Wider intellectual pool
 - Peer review
- **Technology** Imperative
 - Access to unique capabilities
 - Improved technology access

Military Imperative



(Combined US & UK Military Operations since 1990)

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March 2003 - Iraq



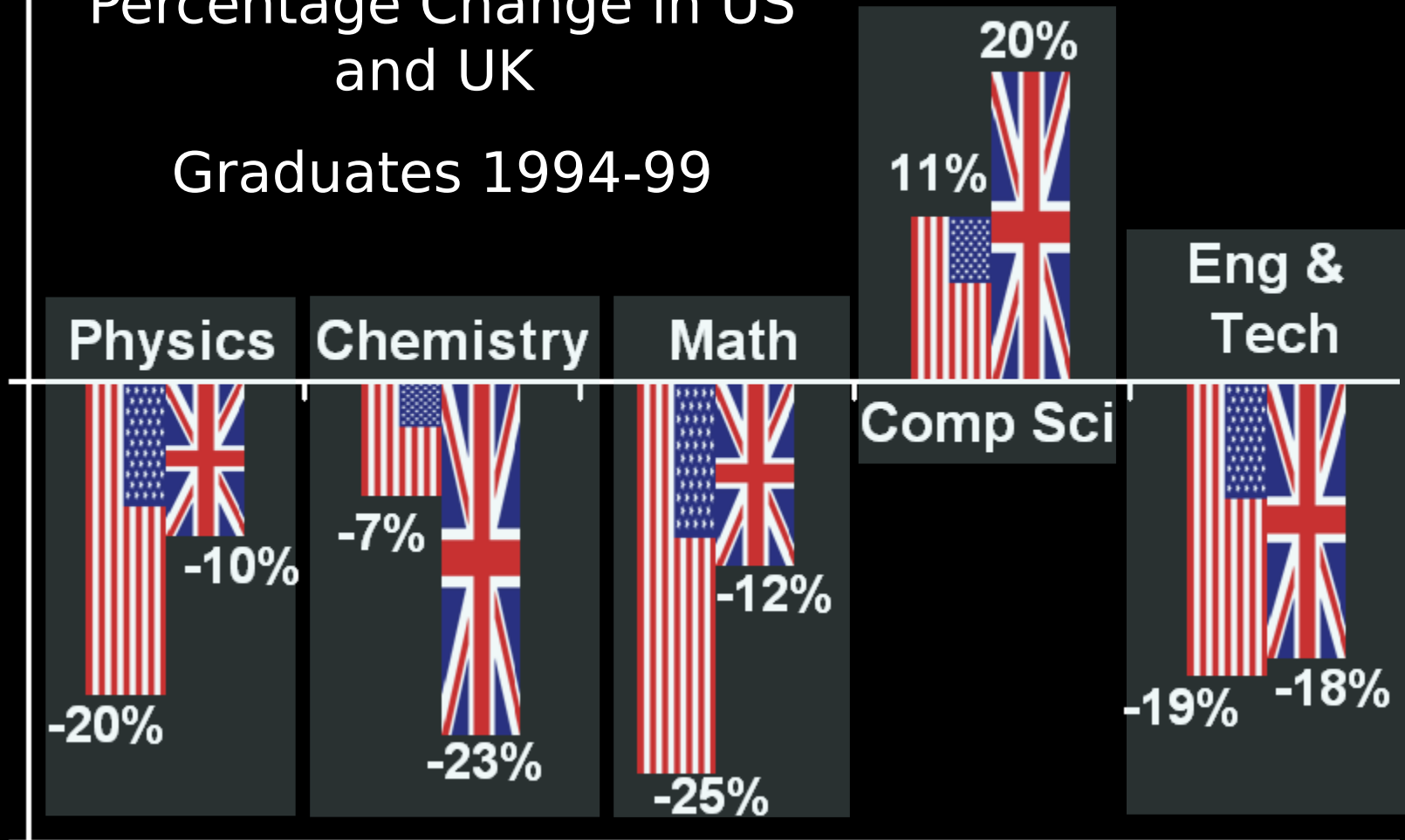
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Intellectual Pool

Percentage Change in US
and UK

Graduates 1994-99



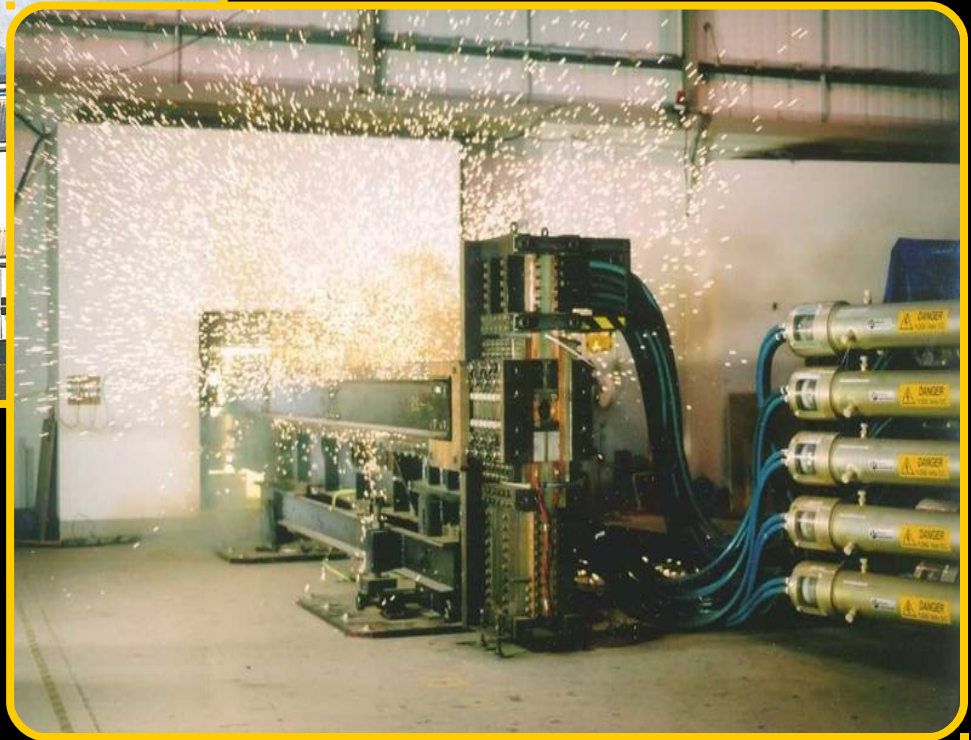
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Fiscal Pressures

- Defence budgets under increasing pressure from other priorities in government spending plans
- Within Defence Budgets S+T is under increasing pressure from other priorities (e.g. O&M)
 - DOD S+T funds requested in 2006 lower than 2005 request
 - UK Defence S+T budget has seen a steady decline in real terms over the last decade

Unique Capabilities



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1958 **Mutual** Defense Agreement

- Underpins all exchanges between the US and UK on nuclear weapon and nuclear propulsion.
- Very strong links between UK Atomic Weapons Establishment and US nuclear labs.
- Excellent example of benefits of collaboration (access to unique capabilities, complementary approaches, peer review, etc)



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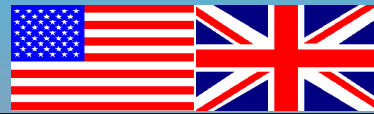
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US – UK Collaborative Framework

24 Collaborative Acquisition Programs



30+ Active Collaborative Research Programs



120 Information Exchange Agreements



The Technical Cooperation Program



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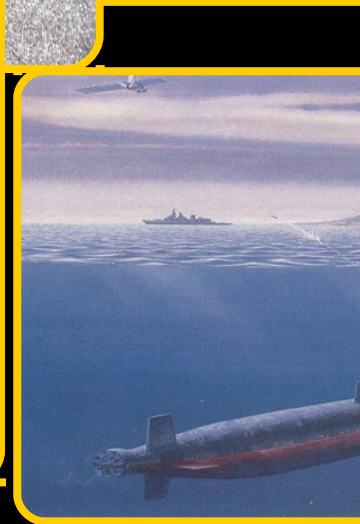
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Cooperative Research Programmes

(12 n

1999

2004)



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International Technology Alliance

- A new model of collaboration
- UK/US government, industry and academic partnership
- **Network & Information Sciences**
 - Network Theory
 - Security across a system of systems
 - Sensor information processing and delivery
 - Distributed coalition planning and decision making
- **Competition in progress** – ITA begins work early 2006



Challenges

- **Disparity in funding**
 - Need to focus on mutual capabilities and ensure we burden-share
- **Different approaches to S+T**
 - UK analysis vs US demonstration – can be complimentary
- **Transitioning cooperative research**
 - Need earlier industry engagement
- **Export controls**
 - Bilateral Defense Acquisition Committee established by President and Prime Minister to address barriers

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TTCP

AUS - 1961

CA - 1957



US - 1957

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TTCP Aims

- Harmonize S&T programmes
 - avoid duplication
- Supplement each nation's program with knowledge and resources of others
 - Information exchange
 - Joint trials and experimentation
 - Joint projects
- Provide best technical information for advice
- Enabler for Coalition warfare / interoperability
 - S&T collaboration a starting point for joint development and interoperability



TTCP

**Chemical, Biological
and Radiological
Defense**

**Electronic Warfare
Systems**

Maritime Systems

**Materials and
Processing
Technology**

C3I Systems

Sensors

Aerospace Systems

**Human Resources
and Performance**

**Conventional
Weapons Technology**

**Joint Systems and
Analysis (inc Land)**

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TTCP - *The Global Laboratory*



- **5** Nations
- **10** Technology and Systems Groups
- **80** Technical Panels & Action Groups
- **170** national organisations on **450** projects
- **300** active TTCP work strands
- **1,200** scientists and engineers directly engaged
- **6,000** + scientists and engineers accessed

Value of working together – Priceless!

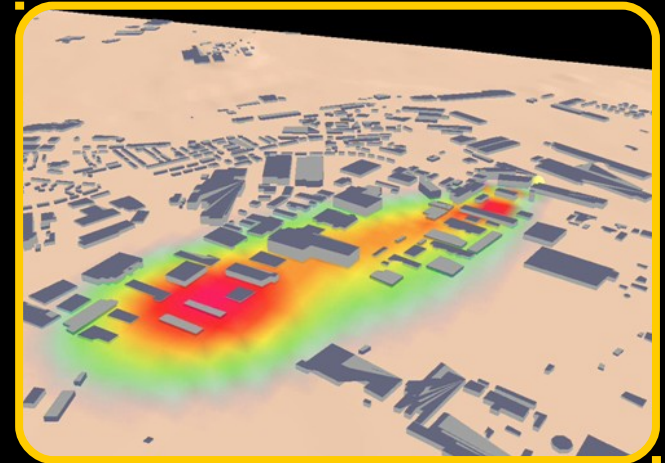
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TTCP Highlights

- Urban Dispersal Models



- Certification Of Bonded Structures



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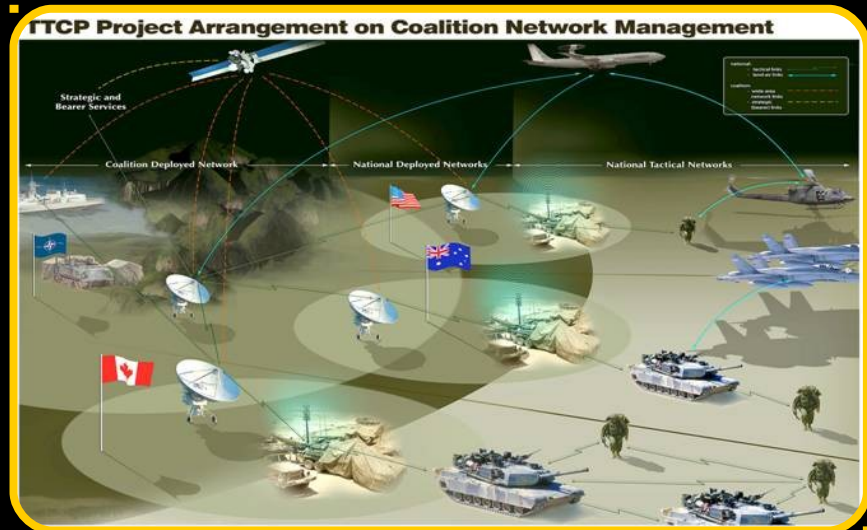


TTCP Highlights

- Radar Detection of Submarine Periscopes



- Coalition Network Management



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Questions?

For further information please
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